

As an illustration of the ingenuity that has to be applied in deciphering the results, we transcribe here from p. 28 an example in which we have merely changed the notation for the convenience of printing. Thus we use four symbols, p, q, P, Q, where the original uses lines and dots either black or red. We have replaced red signs by small letters, black signs by capitals, dots by p or P, lines by q or Q. We use brackets to divide one group of symbols from another. Then we have to decipher (p)(PPQQQ)(q)-(PPPPQQQ)(pqq)(PQ)(pppp)(QQ)(p). The following interpretation may be considered correct, because it makes sense (the process may be compared with solving an equation by trial and error):—Let p or P denote unity, q or Q denote five; then the sentence reads: One, add seventeen, leaves remainder five; add, nineteen, leaves remainder eleven; add six, leaves remainder four; add ten, leaves remainder one. By "leaves remainder" we mean on dividing by thirteen. It is, as we might say, Sunday; in ten days it will be Wednesday; in five more, Monday; in twelve more, Saturday; and in eight more, Sunday again.

With this sample of the contents we must leave the book to our readers. Some will, no doubt, be interested in the problems of decipherment, others in the results obtained; perhaps still more will feel that they cannot be interested in everything, and other problems and other people have greater claims upon their attention. The world at large would regret to see any branch of knowledge die out or remain stationary, and will, in consequence, feel grateful to the author for his labours.

#### A MONOGRAPH OF DENDROBIUM.

*Das Pflanzenreich, Regni vegetabilis conspectus.*  
Edited by A. Engler. N. 50, II., B. 21, Orchidaceæ,  
Monandriæ, Dendrobiinæ. Pars i., genera n. 275-  
277. By Fr. Kränzlin. Pp. 382. (Leipzig: W.  
Engelmann, 1910.) Price 19.20 marks.

THE present volume is the forty-fifth of a series of monographs, comprising the "Pflanzenreich," and the third which deals with the great family of orchids. Of the three latter, the few diandrous genera formed the subject of the first, the work of the late Prof. Ernest Pfitzer, while the second volume, begun by Pfitzer, and completed by Dr. Kränzlin, dealt with the small group of the Coelogyninæ. The bulky "Heft" by Dr. Kränzlin, which is the subject of this notice, is devoted to the great genus *Dendrobium* and its immediate allies. It is evident therefore that there is still very much to be done before we have, what has been a desideratum since the time of Lindley, a complete monograph of this large and important natural order.

The plan of arrangement of tribes and genera adopted in the "Pflanzenreich" is that which was elaborated by Pfitzer in his account of the Orchidaceæ in the "Pflanzenfamilien." Dr. Kränzlin, however, takes a somewhat different view of the limitations of genera. He is here treating of that portion of the section *Dendrobiinæ* which is characterised by the presence in the anthers of four pollinia without

appendages, and in Pfitzer's arrangement included three genera, *Latourea* (a monotypic genus), *Dendrobium* (with 300 species), and *Aporum* (with twelve species). Dr. Kränzlin points out that the first of these was founded on a misconception, and must be regarded as a synonym of the larger genus, in which he also includes the small genus *Aporum*. On the other hand, he finds reason for resuscitating the very doubtful genus *Callista* of Loureiro, which depends on a fragmentary specimen of Loureiro's in the British Museum herbarium, and the genera *Sarcopodium* of Lindley and *Desmotrichum* of Blume. He also raises to generic rank the sections *Inobulbon* and *Diplocaulobium*, and maintains the genus *Adrorhizon*, founded by Sir Joseph Hooker on a single species from Ceylon.

The number of species admitted is more than double the estimate given by Pfitzer in the "Pflanzenfamilien" in 1889. The great genus *Dendrobium* includes more than 600 species, which are distributed among ten subgenera, and the grand total of species contained in the seven genera recognised is more than 700. This great increase in number of species is an index of the large and widespread interest which has been taken in the family of orchids during the last twenty years, a period which, by a strange coincidence, starts from the date of the abrupt termination of the work of the younger Reichenbach. During the whole of this period Dr. Kränzlin has been working continuously and steadily on the order, and with the completion of his monograph of one of the largest genera, as well as one of great interest, to botanists and horticulturists, he has earned a new debt of gratitude from workers both in the pure and applied aspects of the science. A. B. R.

#### ANTHROPOLOGY.

*History of Anthropology.* By Dr. A. C. Haddon, F.R.S., with the help of A. H. Quiggin. Pp. x+158. (London: Watts and Co., 1910.) Price 1s. net.

THIS is a fascinating little volume, and deals in a masterly manner with the history of anthropology in so far as that can be done within the compass of some 150 pages. Anthropology is now so vast a subject that it is necessary for the individual student, if he wishes to become a specialist, to confine his attention to a comparatively small fraction of the whole, and very often the specialist in one department knows little or nothing of what has been done in other departments. To such specialists this short history will be of the greatest value, and the science of anthropology as a whole will benefit by the coordination of results obtained in different departments.

The authors divide their subject into the two main divisions of physical anthropology and cultural anthropology, and these again are divided into chapters with somewhat eclectic titles, dealing with the more important and interesting sections. We have, for example, chapters on the "Pioneers of Physical Anthropology," "Anthropological Controversies," and "The Unfolding of the Antiquity of Man," under the

first division; and chapters on "Ethnology," "The History of Archæological Discovery," "Technology," and "Sociology and Religion," under the second division.

It is, we think, unfortunate that the authors have to a great extent followed the somewhat confused and redundant classification of Dieserud, in the subdivision of their material; it is impossible, for example, to prevent some overlapping in chapters dealing with "The Unfolding of the Antiquity of Man," and "The History of Archæological Discovery." Similar difficulties are met with in connection with other chapters in the book. The question of the classification of the subject-matter of anthropology is confessedly full of difficulties, and the authors no doubt found themselves to a certain extent tied down to the illogical systems at present in use.

The authors confess that their limited space necessitated many omissions, but we were surprised to find no mention of the Gibraltar skull in the chapter on "The Antiquity of Man." The chapter on "Anthropological Controversies" is full of interest, as showing how theology, politics, and economics interfered with the progress of the science.

There have been few, if any, complete histories of anthropology published before the appearance of this work, and the origin of each branch of this subject is so thoroughly explored to its source, that, we are impressed with the fact, that a great deal of original historical research must have been carried out by the authors in the collection of their material.

#### SOME BOOKS ON CHEMISTRY.

- (1) *Inorganic Chemistry for Advanced Students*. By the Right. Hon. Sir H. Roscoe, F.R.S., and Dr. A. Harden, F.R.S. 2nd edition. Pp. viii+476. (London: Macmillan and Co., Ltd., 1910.) Price 4s. 6d.
- (2) *Chemistry for Beginners*. By T. Jenks. Pp. x+309. (New York: F. A. Stokes Co.; London and Edinburgh: W. R. Chambers, Ltd., 1910.) Price 3s. 6d. (Chambers's Wonder Books.)
- (3) *The M.C.C. Periodic Chart of the Elements*. Pp. 45 (introduction) and chart (folded and bound). (London: Metallic Compositions Co., n.d.) Price 8s. 6d.

(1) THE new edition of Roscoe and Harden's "Inorganic Chemistry for Advanced Students" differs from its predecessor (reviewed in NATURE of December 7th, 1899), mainly in the addition of new lessons or chapters on carbon compounds and on the radio-active elements. It is, however, very gratifying to see the new method of making hydrazine from ammonia incorporated so quickly in a text-book, and to find calcium cyanamide duly described as an inorganic compound amongst the compounds of calcium in a chapter which includes a brief but accurate description of the technical preparation of the metal by electrolysis of the fused chloride. The lesson dealing with crystals and isomorphism remains in some need of revision, as three distinct methods are used to

indicate the faces of the crystals in the various diagrams that are reproduced; as the symbols used are not explained the simplest remedy would probably be to omit them altogether from the diagrams. The issue of the new edition has supplied an opportunity for introducing the system of atomic weights in which  $O=16$  instead of  $H=1$ , and these values are now used throughout the book. The larger volume is intended to be used as a sequel to Roscoe and Lunt's "Inorganic Chemistry for Beginners," and an element such as chlorine, which has already been described in the smaller volume, is now referred to only under its metallic derivatives. In this way space has been saved for the introduction of more advanced work than could otherwise have been included within the limits of less than 500 pages.

(2) The "Wonder Book" on chemistry is the third venture which the author has made in seeking to interpret to the non-technical reader some of the more important facts and theories of modern science; the preceding volumes on electricity and photography are dedicated to "Young Readers"; the third volume is for "Beginners." The story is a readable one, and the statements made are usually accurate, at least when dealing with the facts of chemistry; the introduction of theories is responsible for a certain number of errors, as, for instance, where the existence of monatomic molecules is denied (p. 67), or ions are described as "even smaller than atoms" (p. 243); but the author has not hesitated to introduce his youthful readers not only to the atomic and molecular theories, but also to the periodic law and the theory of electrolytic dissociation. A less ambitious programme might have deprived reader and writer alike of the satisfaction of having covered the whole of the subject; but it is precisely because such a sense of perfected knowledge might arise after a perusal of the volume that one would hesitate to commend it to any but the lay reader who intends to remain a layman. As an introduction to the further study of chemistry its value would be very doubtful, since a teacher would probably prefer to deal with a beginner who had not made any attempt to study the subject rather than with one who had imbibed the theories somewhat vaguely outlined by the author. The book is well illustrated, and contains an excellent series of portraits of famous chemists, from Priestley to Mendeléeff.

(3) "The Chart of the Elements," compiled by the Metallic Compositions Company, is intended to summarise in diagrammatic and tabular form the properties of the elements as elucidated by the periodic system. It is intended largely for non-chemical readers who have occasion to make use of metals in various ways, and desire to know something of the properties of related elements which may possibly prove to have valuable technical qualities. An introduction of forty-eight pages is provided, the second part of which, on "The Periodic Law and its relation to Speculative Thought," differs fundamentally from the earlier descriptive and explanatory pages and reveals the author at work on what is evidently a favourite hobby or recreation.

T. M. L.